UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,992	04/06/2000	Brian Mitchell Bass	RAL9-1999-0140-US1	9200

25299	7590	03/10/2004	

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EXAMINER
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ART UNIT	PAPER NUMBER
2172	19

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's arguments filed 02/13/2004 have been fully considered but they are

not persuasive..

Applicants argued that, "Bremer does not teach, suggest or imply (1) a direct

table ... for a search tree and (ii) at least one bird representing a partial match of input

key." (Page 14, lines 4-7).

Response: Bremer et al. (hereinafter Bremer) of 6,553,002 teaches routing table

containing network addresses of each node in the search tree and it is stored as a

binary tree in memory (col. 2, lines 32-48). Bremer teaches that the each unique host

address be contained within the network address since the network address has a

prefix portion containing the network address (col. 7, lines 7-44; also see col. 4, lines

50-53). Examiner interpreted a routing table containing the addresses for the search

tree as a direct table in the claimed invention. The matching with one portion of the

network address storing in the routing table from which the search is traversing the

search tree from node to the next node and until the best match is found (col. 7, lines

58-67 and col. 8, lines 1-15; also see col. 8, lines 47-67 and col. 9, lines 1-18 and fig. 9).

Examiner interpreted it as a bird having a portion or partial match with the network

address key or destination address or search key containing up to 128 bits long (col. 4,

lines 28-52 and col. 7, lines 8-22). Thus the applicants' arguments are not persuasive

over the record of prior art.

2.   Claims 14-24 are pending in this application.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

5.   Claims 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over

US Patent No. 6,553,002 issued to Bremer et al. (hereinafter Bremer).

With respect to claim 14, Bremer discloses an input key that is to be searched

(search key or destination address: col. 5, lines 43-48; col. 7, lines 10-22; also, col. 11,

lines 22-48 and lines 51-55); a direct table that stores a first address location for a

search tree (routing table storing the search tree containing the address location for the

next router: col. 4, lines 50-53); a plurality of pattern search control blocks that each

represent a branch in the search tree (using known methods in the radix tree to traverse

the search tree: col. 8, lines 1-15); at least one bird representing a partial match of the

input key (matching a leaf node as a bird to the search key: col. 11, lines 22-27; also

col. 7, lines 40-44); and a plurality of leaves wherein each leaf is an address location for

the result of a search (best match is found: col. 11, lines 40-45).

Bremer discloses search key as a key to be search; routing table stored search

tree addressing the location of the router; traversing the search tree or radix tree by

using the known method; leaf node and the best match found for the leaf node. Bremer

does not clearly disclose, "a direct table that stores a first address location for a search

tree and one bird representing a partial match."

However, Bremer discloses a routing table stores a search tree or search tree

producing the address or location or a router as direct table (col. 2, lines 58-62 and col.

4, lines 50-52; see fig. 14A and fig. 14B); and a leaf node of the search tree as a bird

(col. 7, lines 40-44).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the routing table storing address location for a search tree (col. 4, lines 50-52) and a leaf node (col. 7, lines 40-44) to obtain the best match search key found (col. 11, lines 40-45) as taught by Bremer because it would have made the system using less memory to store a routing table for a search tree (col. 2, lines 10-12), being more efficiently forward data packet (col. 4, lines 35-38) and reducing the searching time (col. 5, lines 15-20) in the searching key with a large address key value environment.

With respect to claim 15, Bremer discloses a lookup definition table that manages a tree search memory (col. 4, lines 47-52).

With respect to claim 16, Bremer discloses wherein the lookup definition table comprises entries that define a physical memory that the tree resides in, a size of the key and leaf, and a type of search to be performed (col. 4, lines 66-67 and col. 5, lines 1-32).

With respect to claim 17, Bremer discloses wherein the lookup definition table is implemented in a plurality of memories (col. 10, lines 22-38).

With respect to claim 18, Bremer discloses wherein a format for a direct table entry includes at least one of a search control block; a next pattern address that point to a next pattern search control block; a leaf control block address that points to a leaf or result; a next bit or bits to test; and a direct leaf; a format for a pattern search control block includes at least one of a search control block; a next pattern address that point to a next pattern search control block; a leaf control block address that points to a leaf or

result; and a next bit or bits to test; and a direct leaf (col. 8, lines 1-15 and col. 11, lines 22-48).

With respect to claim 19, Bremer discloses wherein a format for a pattern search control block includes at least one of a search control block; a next pattern address that point to a next pattern search control block; a leaf control block address that points to a leaf or result; and a next bit or bits to test (col. 11, lines 22-48).

With respect to claim 20, Bremer discloses a leaf data structure includes at least one of chaining pointer; a prefix length; a pattern to be compared to the search key; and variable user data (col. 12, lines 1-28).

With respect to claim 21, Bremer discloses wherein the direct leaf is stored directly in a direct table entry and includes a search control block and a pattern to be compared to a search key (col. 8, lines 1-15 and col. 11, lines 22-48).

With respect to claim 22, Bremer discloses wherein a pattern search control block is inserted in the search tree at a position where the leaf patterns differ (col. 8, lines 1-15).

With respect to claim 23, Bremer discloses wherein a pattern search control block has a shape defined by a width of one and a height of one and is stored in a memory that has a line length of at least 64 bits (col. 6, lines 30-51 and col. 8, lines 1-15).

With respect to claim 24, Bremer discloses wherein a pattern search control block has a shape defined by a width of one and a height of two and is stored in a memory of at least 36 bits (col. 6, lines 30-51 and col. 8, lines 1-15).

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Contact Information

7.   Any inquiry concerning this communication should be directed to Anh Ly whose

telephone number is (703) 306-4527 or via E-Mail: **ANH.LY@USPTO.GOV**. The

examiner can be reached on Monday - Friday from 8:00 AM to 4:00 PM.

If attempts to reach the examiner are unsuccessful, see the examiner's

supervisor, John Breene, can be reached on (703) 305-9790.

Any response to this action should be mailed to:

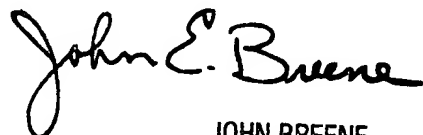Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9306 (Central Official Fax Number)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA, Fourth Floor (receptionist).

Inquiries of a general nature or relating to the status of this application should be

directed to the Group receptionist whose telephone number is (703) 305-3900.

AL
MAR. 4th, 2004

JOHN E. Breene

JOHN BREENE
SUPERVISORY PATENT EXAMINER
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